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COURT OF APPEALS
DIVISION III
STATE OF WASHINGTON
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NO. 27652-0-III

IN THE COURT OF APPEALS
OF THE STATE OF WASHINGTON
DIVISION III

LARRY MICHAELS and DEBBIE MICHAELS, husband and wife
And the marital community composed thereof;

DAN P. EVANS, a single person; and

KATHY D. CMOS, individually, and as Administratrix and
Representative of the Estate of Mike P. Cmos, Jr.;

Respondents,

v.

CH2M HILL, INC., a Florida corporation, and KELLY IRVING,

Appellants.

BRIEF OF RESPONDENTS MICHAELS AND EVANS

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RESTATEMENT OF THE ISSUES

1. Does substantial evidence support the 26 findings of fact—entered by the trial court judge following a 14-day bench trial—to which Defendants CH2M Hill, Inc. (CH2M), and Kelly Irving (Irving) assign error?

2. Did CH2M and Irving engage in the “preparation of design plans and specifications,” as the phrase is used in the exception to the design professional immunity statute, RCW 51.24.035(2)?

3. In designing modifications to the City of Spokane’s waste treatment facility, did CH2M and Irving have a duty to comply with the applicable professional standard of care by analyzing, understanding and documenting the consequences their design would have on this complex system?

4. Did CH2M’s and Irving’s negligent design cause the Plaintiffs’ injuries?

5. Did the City’s foreseeable conduct supersede CH2M’s and Irving’s negligence?

RESTATEMENT OF THE CASE

CH2M was the on-site engineering consulting firm for the City of Spokane's waste treatment facility.¹ (CP 3108-09 [Finding of Fact (FOF) ##5 & 7-10].²) Irving, an engineer himself, was the on-site program manager for CH2M. *Id.* (FOF ##6 & 11). Among other things, CH2M entered into an agreement with the City to redesign the waste treatment facility's recirculation and heating system and to provide other "on call" services related to plant operation. (CP 3110 [FOF ##15-16]; Exs. 4-5.)

Part of the treatment process for waste consists of "digestion" by bacteria. There are three large tanks, known as "digesters," where this occurs. One of the reasons for the CH2M redesign of the recirculation and heating system was that the digesters were not able to maintain a sufficiently high temperature for efficient digestion to occur. (CP 3110 [FOF #17].) In order to solve the problem, CH2M and Irving proposed to separate flows of raw sludge, which were relatively cold, from flows of recirculated sludge, which were relatively hot. (CP 3111-13 [FOF ##18-30].)

¹ Also known as known as the Spokane Advanced Wastewater Treatment Plant (SAWTP) or simply the Advanced Wastewater Treatment Plant (AWTP or AWWTP).

² Findings of Fact (FOF) cited herein are unchallenged unless otherwise noted. Unchallenged findings are verities on appeal. *Estate of Jones*, 152 Wn.2d 1, 8, 93 P.3d 147 (2004).

To accomplish the separation of flows on an interim basis until the redesign could be completed, Irving suggested placing valves into the existing system. (CP 3113 [FOF ##29-30].) Irving accepted the City's suggestion to use simple metal plates known as "skillets" instead of valves because they would be more expedient and less expensive to install. (CP 3113 [FOF #32; challenged FOF #33].) He had no objection to the skillets because they served the same essential function as the valves he proposed. (RP 523:13-524:10.) He participated in deciding the physical location of the skillets, pointing out to City employees where to install them. (CP 3113-14 [FOF #36]; *see also* RP 419:6-420:22 & CP 1564-66 [Van Wert].)

Five days after the skillets were installed, one of the digesters at the waste treatment facility (D3) collapsed, killing Mike Cmos and severely injuring Dan Evans and Larry Michaels. This lawsuit followed, and after a 14-day bench trial over a period of four weeks, the trial court found that CH2M's and Irving's separation-of-flows design was negligent and that it proximately caused the collapse of D3. The court entered detailed and comprehensive findings and conclusions in support of its decision. (CP 3105-3130.) CH2M and Irving now appeal.

ARGUMENT

I. Substantial evidence supports the trial court's findings of fact.

CH2M and Irving assign error to 26 separate findings of fact entered by the trial court judge. (App. Br., at 2 & App. A.) As they acknowledge, this Court's role is limited to determining whether substantial evidence supports the findings. *Id.* at 40. Substantial evidence is a quantum of evidence sufficient to persuade a rational fair-minded person. *Sunnyside Valley Irrig. Dist. v. Dickie*, 149 Wn.2d 873, 879-80, 73 P.3d 369 (2003). If there is substantial evidence, an appellate court may not substitute its judgment for that of the trial court, even though it may have resolved a factual issue differently. *Id.* In this case, the challenged findings are supported by substantial evidence.

A. FOF #33 is supported by substantial evidence: CH2M and Irving accepted the City's suggestion to use skillets rather than valves because they accomplished the same function in CH2M's separation-of-flows design.

CH2M assigns error to FOF #33. (App. Br., at 2.) The finding states: "Irving and CH2M accepted the suggestion of the insertion of a skillet in lieu of a valve and agreed that the skillet served the same essential function as a valve." (CP 3113.) Importantly, CH2M's challenge to FOF #33 is limited to the choice of skillet versus valve. CH2M does not challenge any of the findings relating to CH2M's separation-of-flows design into which the skillet was incorporated. (CP 3110-3113

[FOF ##15-30].) Nor does CH2M challenge the finding establishing that it participated in choosing the location for installation of the skillets. (CP 3114 [FOF #36]; *see also infra* pt. B [re: limited challenge to FOF #34].)

The challenged finding—that CH2M accepted the suggestion to use a skillet instead of a valve—is supported by the following evidence. Irving himself testified that he did not have an objection to skillets as opposed to valves. (RP 523:13-524:10.) As he described it, “[t]he concept essentially was to separate flow and a metal plate [i.e., skillet] or a valve, or disconnecting part of the piping, all would have accomplished the same goal of separating the flow paths.” (RP 524:4-7 [brackets added]; *accord* RP 1578:9-11 [King: testifying that valve and skillet accomplished same purpose]; RP 1864:24-1865:6 [Reynolds: testifying that there is no practical difference between closed valve and skillet].)

Because the valves originally proposed by CH2M and the skillets later accepted upon the City’s suggestion served the same function, in the same way, any error in the challenged finding would have to be harmless. The trial court’s findings of negligence and causation arose from the separation-of-flows design and the location of the mechanism used to separate the flows rather than the precise mechanism (whether valves or skillets) used to accomplish the separation of flows. *See State ex rel.*

Carriger v. Campbell Food Markets, Inc., 65 Wn.2d 600, 607, 389 P.2d 1016 (1965) (challenge to immaterial fact is harmless error).

B. FOF #34 is supported by substantial evidence: Irving participated in deciding the physical location of the valves/skillets.

CH2M assigns error to FOF #34, but only to the extent that it implies Irving had the authority to decide where the skillets were placed. (App. Br., at 2.) The finding states: "Irving participated in deciding the physical location for the valves/skillets within the digester piping system." (CP 3114.) The fact that Irving participated in deciding the physical location for the valves/skillets is conceded, and this fact by itself supports an inference that he had authority to decide where the skillets were placed.

In addition, the valves/skillets were an integral component of CH2M's separation-of-flows design in the sense that they were the means by which CH2M proposed to separate the flows. (CP 3113 [FOF ##29-30]; RP 523:13-524:25 [Irving].) This confirms Irving's authority to decide where the skillets were placed. The fact that he had such authority is further confirmed by the testimony of City employee Brad Van Wert. He testified that Irving pointed out to City employees where to install the skillets, and City employees marked the locations with spray paint at his direction. (RP 419:6-420:22; *see also* CP 1564-66.)

Even in the absence of such evidence, the distinction between participation, which is conceded, and authority, which is contested, is harmless error. *See Carriger*, 65 Wn.2d at 607. The trial court's decision did not hinge on any question of Irving's authority to order City personnel around, but rather upon CH2M's and Irving's negligent design.

C. FOF #37 is supported by substantial evidence: CH2M and Irving are subject to the standard of care of a reasonably prudent engineer under similar circumstances.

CH2M assigns error to FOF #37. (App. Br., at 2.) The finding states:

The relevant engineering standard of care is the degree of skill and diligence employed by a reasonably prudent professional engineer or consultant in the State of Washington providing engineering services under the same or similar circumstances as at the time of the engineering services in question.

(CP 3114.) This finding mirrors the language of CH2M's contract with the City of Spokane. (Ex. 1 [internal Ex. I, § A]; CP 3109 [FOF ##8-9].) In addition to this contractual language, the materially identical extra-contractual standard of care was attested by all experts, including CH2M's experts, and it was conceded by Irving. (RP 258:7-15 [Brugger]; RP 648:21-649:7 [Moncarz]; RP 1444:3-15 [Gill]; RP 1887:1-23, 1946:1-18 [Chambers]; RP 2146:6-2147:5 [Anderson]; RP 1807:13-24 [Irving].) There is no contrary evidence in the record.

D. FOF ##38-39 are supported by substantial evidence: The standard of care obligated CH2M and Irving to analyze, understand and document the upstream and downstream consequences of incorporating their separation-of-flows design into the City's complex waste treatment system.

CH2M assigns error to FOF ##38-39. (App. Br., at 2.) FOF #38 states:

That standard of care [FOF #37] required CH2M to perform an engineering analysis of the ways in which the modification involving the flow separation may affect use and operation of the plant, including the procedures and operations utilized by the plant operators.

(CP 3114.) FOF #39 elaborates:

That standard of care [FOF #37] required CH2M, upon making such recommendation, to inform the plant supervisors of the results of such engineering analysis, and to put that engineering analysis in writing, specifically including: (1) all effects of the flow separation modification upon procedures and operations utilized by plant operators; (2) the need for new Standard Operating Procedures (SOPs) encompassing the consequent changes; and (3) the need for training of the plant's operators to comply with such new SOPs.

(CP 3114.) The actions required by the standard of care and referenced in the foregoing findings were well-attested by plaintiffs' experts. (RP 258:7-261:19 [Brugger]; RP 650:25-651:16, 657:9-658:15, 659:18-660:1, 731:5-10 [Moncarz]; RP 1443:21-1452:4 [Gill].) For example, expert witness Brugger testified without objection:

[t]he standard of care would have required [Irving and CH2M] to evaluate the impacts of their design, to analyze those impacts. Would have been to convey those impacts to their client, the City

and the City staff. And to verify that those impacts were understood by the people operating.

(RP 258:11-15.) Expert Moncarz testified that the standard of care required a written “cause and effect analysis.” (RP 657:21-658:15.) Expert Gill likewise testified that the standard of care required this type of analysis, including development of written standard operating procedures before making physical changes to the system. (RP 1444:20-1452:4.) This testimony is accurately reflected in the trial court’s findings.

While CH2M’s experts testified to the contrary, the trial court was free to reject their testimony, *see* WPI 2.10, especially in light of the crucial admission by Irving that he was obligated to analyze the “upstream and downstream” consequences of incorporating his separation-of-flows design into a complex system. (RP 568:13-19.) This admission was consistent with CH2M’s expert testimony that Irving’s engineering services included understanding the upstream and downstream effects of the changes he made to the system. (RP 2148:5-2150:12, 2168:3-2169:1 [Anderson].)

- E. FOF #40 is supported by substantial evidence: Neither CH2M nor Irving analyzed, understood or documented the consequences of incorporating their separation-of-flows design into the City’s complex waste treatment system.**

CH2M assigns error to a portion of FOF #40. (App. Br., at 2.)³ The entire finding, with the challenged portion underlined, is:

Neither Irving nor any other CH2M employee performed any engineering analysis of the effects the flow separation and the skillets would have upon the City's operation of the digesters, and failed to understand or discover that the skillets would alter valving used by City plant operators for pumped transfers of sludge between the digesters, more specifically the valving used for a pumped transfer from Digester 3 to Digester 2. Performance of such an analysis, and the preparation and provision of a written analysis to the City, is an engineering duty which under the circumstances in this case an engineer cannot delegate or transfer to someone who is not an engineer, including the City's Maintenance Supervisor.

(CP 3115.) In support of the challenged portion of the finding, Irving admitted that he did not know how the valving worked before the dome collapse, (RP 562:18-563:6), and also that he did not perform any analysis of how installation of the skillets changed the valving, (RP 566:22-567:15).

In addition to the evidence supporting FOF ##38-39, the last sentence of the finding is also supported by the following substantial evidence. An engineer's obligation to perform the necessary analysis cannot be delegated to a non-engineer. (RP 260:16-19 [Brugger].) It must be performed even if the client does not request the analysis, assuming that the client is sufficiently knowledgeable to make the request in the first

³ CH2M highlighted the challenged portions of certain findings in Appendix A to its brief. (See App. Br., at 2 n.1 & App. A.)

place. (RP 654:17-656:8 [Moncarz].) It must be performed even if a representative of the client tells the engineer not to perform the analysis.

(RP 260:1-19 [Brugger].)

F. FOF ##41 & 44 are supported by substantial evidence: CH2M and Irving breached the standard of care by failing to analyze, understand and document the consequences of incorporating their separation-of-flows design into the City's complex waste treatment system.

CH2M assigns error to FOF ##41 & 44. (App. Br., at 2.) FOF #41

states:

The failure of Irving and CH2M to perform such engineering analysis constituted a failure to exercise the degree of skill and diligence normally employed by professional engineers or consultants performing the same or similar services at the time said services were performed in May, 2004.

(CP 3115.) Similarly, FOF #44 states:

The failure of CH2M and Irving to provide the written analysis set forth in Finding of Fact 39, above, to the City's plant supervisors before the installation of the skillets, constituted a failure to exercise the degree of skill and diligence normally employed by professional engineers or consultants performing the same or similar services at the time said services were performed in May, 2004.

(CP 3116.) These findings logically follow from FOF ##38-39, regarding what CH2M and Irving were supposed to do to meet the standard of care, and FOF #40, regarding their failure to do it. In addition, plaintiffs' expert witnesses confirmed that CH2M and Irving breached the standard of care.

(RP 259:12-25 [Brugger]; RP 1445:11-1450:14 [Gill].)

G. FOF #42 is supported by substantial evidence: City personnel were unaware of the consequences of CH2M's and Irving's separation-of-flows design.

CH2M assigns error to a portion of FOF #42. (App. Br., at 2.) The challenged portion of the finding is:

At the time of the above-referenced May 3, 2004 meeting, neither the plant Superintendent, the Operations Supervisor nor the Maintenance Supervisor were aware that installation of the skillets would change valving used by City plant operators for pumped transfers between the digesters, specifically the valving used for a pumped transfer of sludge from Digester 3 to Digester 2.

(CP 3115.) In support of this finding, each witness mentioned in the finding testified that he was unaware of the consequences of CH2M's design. Plant Superintendent Timothy Pelton testified that he believed transfers were unaffected by the skillets. (RP 1112:10-15.) Likewise, Operations Supervisor Mike Gavin testified that he did not think the skillets would change the valving. (RP 578:3-15.) Maintenance Supervisor John King contradicted himself on the subject. (RP 1570:11-1571:11.) The trial court found him not credible, and CH2M has not challenged these credibility findings. (CP 3044 [memo. op.], 3115 [FOF #42]). The lack of awareness of the changes in valving was acknowledged by CH2M's own expert witnesses. (RP 1920:17-1921:17 [Chambers]; RP 2175:9-2177:12 [Anderson].)

H. FOF ##43 & 48 are supported by substantial evidence: CH2M's and Irving's separation-of-flows design altered

the valving for a transfer of sludge from D3 to D2 using the recirculation pumps.

CH2M assigns error to a portion of FOF #43. (App. Br., at 2 & App. A.) The entire finding, with the challenged portion underlined, is:

CH2M and Irving failed to communicate to the City's plant supervisors at the May 3, 2004 meeting, or at any time thereafter and prior to the dome collapse of Digester 3, in writing or otherwise, the effects of the installation of the skillets upon the valving used by City plant operators for pumped transfers between the digesters, specifically the altered valving to be used for a pumped transfer of sludge from Digester 3 to Digester 2.

(CP 3116.) In context, this assignment of error is difficult to comprehend. By challenging only the last clause of the finding, is CH2M suggesting that it failed to communicate regarding the effects of the installation of the skillets in general, but that it did, in fact, communicate specifically regarding the effects of the skillets on the valving to be used for a pumped transfer of sludge from D3 to D2?

Or, is CH2M suggesting that, whether or not there was any communication regarding the effects of the installation of the skillets, the installation did not, in fact, alter the valving? The latter interpretation is consistent with CH2M's and Irving's challenge to a portion of FOF #48, which states that "the skillets had changed valving for a pumped transfer from Digester 3 to Digester 2." (*See* App. Br., at 2 & App. A; *see also* CP 3116.) No matter how the assignment of error is interpreted, these findings (both ##43 & 48) are supported by substantial evidence.

The installation of the skillets altered the valving for a transfer of sludge from D3 to D2 using the recirculation pumps. (RP 193:5-13, 214:3-215:3 [Brugger]; RP 635:4-13 [Moncarz]; RP 846:22-25, 850:9-13 [Thain]; RP 903:19-22, 906:1-4 [Fletcher]; RP 1466:14-1468:12, 1480:15-17 [Gill].) The alteration of the valving resulting from installation of the skillets was acknowledged by CH2M's experts. (RP 1826:4-12 [Irving: "It changed the flow path"]; RP 1927:8-20 [Chambers]; RP 2180:2-20 [Anderson].)

There was no communication regarding the altered valving. This is conclusively established by the unchallenged portion of FOF #43. It is also attested by the operators who unsuccessfully attempted to transfer sludge on the date of the collapse of D3. (RP 792:23-794:5 [Headley]; RP 846:6-21, 850:18-20 [Thain]; RP 906:5-14, 916:15-19 [Fletcher].) It would have been impossible for Irving and CH2M to provide any such communication because they did not analyze the effects of the skillets and were unaware that they had altered the valving, as established by the unchallenged portion of FOF #40. Key City personnel were likewise unaware of any alteration in the valving resulting from installation of the skillets, as noted in connection with challenged FOF #42.

- I. **FOF #46 is supported by substantial evidence: The timing of Terry Headley's actions is attested by Mr. Headley himself.**

CH2M assigns error to a portion of FOF #46. (App. Br., at 2.) The entire finding, with the challenged portion underlined, is:

At that time, the operator in charge of the day shift, Terry Headley, became concerned that Digester 3 was too full, and ordered the stoppage of an ongoing pumped transfer of sludge from Digester 2 into Digester 3, and the start of a pumped transfer back out of Digester 3 into Digester 2.

(CP 3116.) In context, “at that time” refers to “[t]he first attempt to pump a sludge transfer from Digester 3 to Digester 2 after the skillet installation took place,” i.e., “approximately 2:00 p.m. on May 10, 2004.” (CP 3116.) The timing is the subject of unchallenged FOF #45. *Id.* The witness referred to in FOF #46, Terry Headley, testified that the actions described in the finding occurred “about two o’clock.” (RP 792:3-22; *see also* Ex. 55 [Headley’s notes].) In any event, CH2M has not explained how any error in the precise time of the transfer is prejudicial. *See Carriger*, 65 Wn.2d at 607.

J. FOF #56 is supported by substantial evidence: In attempting to transfer sludge from D3 to D2 using the recirculation pumps, the operators were confused by the changes resulting from CH2M’s separation-of-flows design.

CH2M assigns error to a portion of FOF #56. (App. Br., at 2.) The entire finding, with the challenged portion underlined, is:

The valving which Mr. Thain and Mr. Fletcher set up actually created a ‘deadhead,’ and the recirculation pumps were not pumping sludge out of Digester 3. This was not simply a ‘mistake’ or combination of ‘mistakes.’ These experienced operators failed

to valve the transfer correctly because they were confused by the installation of the skillets and because they had not been given any training or instruction regarding the proper valving for sludge transfers after the skillet installation.

(CP 3118.) The unchallenged portion of FOF #56 as well as unchallenged FOF ##51-55 establish that the valving had been set the wrong way to accomplish the intended transfer of sludge from D3 to D2. (CP 3117-18.) CH2M's expert witness Anderson characterized this fact as "a basic valving mistake on D3 that was unrelated to the skillet," and presumably, therefore, unrelated to CH2M's and Irving's separation-of-flows design. (RP 2187:14-15.)

The trial court drew a different inference from this evidence than CH2M's expert; namely, that the operators were confused by the valving changes resulting from CH2M's design. The trial court based its inference on five additional undisputed facts: (1) the operators attempted but failed to transfer sludge out of D3; (2) the operators attempted but failed to shut off the feed of raw sludge into D3; (3) the operators did not attempt any other measures to reduce the level of sludge in D3, such as a gravity transfer to another digester; (4) the foregoing problems had never occurred before; and (5) these problems occurred for the first and only time after the CH2M design was installed. (CP 3045.) The operators had never failed to successfully complete a sludge transfer in the 30-plus year history of the

City's wastewater treatment facility until CH2M's separation-of-flows design was incorporated into the system. (RP 1113:5-12 [Pelton]; RP 672:3-11 [Moncarz].) Not only were these facts undisputed, they were assumed by CH2M's own expert witnesses, and they have not been challenged on appeal.

K. FOF ##57 & 58 are supported by substantial evidence: CH2M's and Irving's breaches of the standard of care proximately caused the collapse of D3.

CH2M assigns error to FOF ##57-58. (App. Br., at 2.) FOF #57 states:

If CH2M and Irving had complied with the standard of care by providing a written analysis regarding the effects of the skillet installation on valving operations, it is more probable than not that the operators would have known how to properly valve the attempted pump transfer from Digester 3 to Digester 2 on May 10, 2004, the pumped transfer would have been successful, the dome collapse would not have occurred, Mike Cmos would not have drowned and Dan Evans and Larry Michaels would not have been injured.

(CP 3118.) Likewise, FOF #58 states:

The failure of Irving and CH2M to comply with the applicable professional standard of care was a proximate cause of the collapse of the dome of Digester 3 on May 10, 2004, the death of Mike Cmos and the bodily injuries of Dan Evans and Larry Michaels.

(CP 3119.) These findings are logical conclusions from prior findings. In addition, they are attested by both plaintiffs' and defendants' experts. (RP 260:20-261:19 [Brugger]; RP 1449:9-1452:4 [Gill]; RP 1932:14-1933:7 [Chambers]; RP 2181:10-14, 2187:20-23 [Anderson].)

- L. FOF #59 is supported by substantial evidence: The operators were confused and the Plant Superintendent had no reason to believe that D3 was in imminent danger of collapse.**

CH2M assigns error to a portion of FOF #59. (App. Br., at 2.) The entire finding, with the challenged portion underlined, is:

Just prior to the dome collapse, when Plant Superintendent Tim Pelton saw sludge dripping from the pressure relief valves on top of digester 3, he reasonably believed that a temporary foaming event was occurring. He did not know that the plant had no functioning digester overflow system. He was not aware of the level of sludge in the digester, nor did he know that raw sludge was still being fed into Digester 3 from the GBTs. He did not know that the SCADA system was malfunctioning. He did not know that the skillets had changed the valving for transfers, or that the operators on duty were confused about how to properly valve a transfer from Digester 3 to Digester 2, or that such a transfer had been attempted at 2:00 p.m. that day. He did not know nor should he have known that Digester 3 was in imminent danger of collapse.

(CP 3119.) The portion of the finding relating to operator confusion is supported by the same evidence that supports FOF #56.

The portion of the finding relating to what Plant Superintendent Tim Pelton should have known is supported by the unchallenged portions of this same finding (FOF #59). Pelton “reasonably believed that a temporary foaming event was occurring.” Such foaming events had occurred before without incident. (RP 290:10-15 [Brugger]; RP 600:9-18 [Gavin]; RP 899:19-20 [Fletcher]; RP 1859:11-1860:16 [Reynolds]; Ex. 11 [internal p. 2].) “He did not know that the SCADA system was malfunctioning.” Foaming events would result in discrepancies in various

readings related to the quantity of sludge in the digester. (RP 1161:16-25 [Michaels].) “He did not know that the skillets had changed the valving for transfers.” The operators had never been unable to successfully complete a transfer before. (RP 1113:5-12 [Pelton]; RP 672:3-11 [Moncarz].) All of these unchallenged facts confirm that Pelton had no reason to know that collapse was imminent. (See RP 2160:14-17 [Anderson].)

M. FOF #61 is supported by substantial evidence: CH2M’s and Irving’s failure to comply with the standard of care created the hazard that the operators would be confused and unable to transfer sludge.

CH2M and Irving assign error to FOF #61. (App. Br., at 2.) The challenged finding is: “CH2M’s failure to comply with the applicable standard of care created the hazard that City plant operators would be confused and unable to effectuate a pumped transfer of sludge out of an overfilled digester.” (CP 3120.) This finding is a logical conclusion from prior findings. It is hardly surprising that changing the valving (see substantial evidence in support of FOF ##43 & 48), without knowing, let alone communicating whether or how it was changed (see unchallenged portions of FOF ##40 & 43), would create the hazard of confusing those responsible to operate the system.

N. FOF #62 is supported by substantial evidence: CH2M’s and Irving’s failure to comply with the standard of care

created or increased the same type of hazard—i.e., the collapse of D3—as the City’s conduct.

CH2M and Irving assign error to FOF #62. (App. Br., at 2.) The finding states:

The hazard of injury or death from overfilling and collapsing the digester dome created by any acts or omissions of the City is the same type of hazard that was created or increased by CH2M’s failure to comply with the standard of care.

(CP 3120.) CH2M’s breach of the standard of care confused operators and hindered their ability to transfer sludge out of D3. The unchallenged portions of FOF #63 establish that this breach of the standard of care was a but-for cause of the dome collapse. (CP 3120.) CH2M offers no argument or evidence to show how its conduct created any different type of hazard.

O. FOF ##63 & 67-68 are supported by substantial evidence: CH2M’s breach of the standard of care did not operate independently of the City’s conduct, but rather was part of the same causal chain leading to the collapse of D3.

CH2M assigns error to a portion of FOF #63 and all of FOF ##67-68. (App. Br., at 2.) FOF #63 states, with the challenged portion underlined:

Despite the blocked digester overflow and the inaccurate SCADA measurements of the sludge level in Digester 3 on May 10, 2004, the digester dome would not have collapsed if the operators had been able to transfer sludge out of Digester 3 approximately one hour before the digester dome collapse. The operators’ inability to transfer sludge out of Digester 3 was caused by CH2M and Irving’s failure to comply with the applicable standard of care. The situation created by the acts of omissions of the City resulting in

overfilling and the collapse of the digester dome did not operate independently from the situation created by CH2M and Irving's failure to comply with the standard of care, which also resulted in overfilling and the collapse of the digester dome.

(CP 3120.) FOF #67 states:

The dome of Digester 3 collapsed and the subject death and injuries occurred as a direct and proximate result of the failure of CH2M and Irving to comply with the applicable standard of care, in concurrence with the acts and omissions of the City.

(CP 3121.) Likewise, FOF #68 states: "There was no independent intervening cause that superseded the negligence of CH2M and Irving."

(CP 3121.)

With limited exceptions, which are supported by overwhelming evidence, the causal chain is *unchallenged*. It is a given that the digester dome would not have collapsed if the operators had been able to transfer sludge out of D3. (CP 3120 [unchallenged portion of FOF #63].) CH2M's and Irving's design altered the valving for such a transfer.⁴ At the time, neither CH2M nor Irving knew how—or even whether—their design altered the valving. (CP 3115 [unchallenged portion of FOF #40].) Key City personnel believed that CH2M's and Irving's design did not alter the

⁴ As noted above, CH2M and Irving challenge FOF ##43 & 48 to the extent they state that their design altered the valving. (See App. Br., at 2 & App. A.) The alteration of the valving was attested by Plaintiffs' experts, CH2M's experts, and the operators themselves. (RP 193:5-13, 214:3-215:3 [Brugger]; RP 635:4-13 [Moncarz]; RP 846:22-25, 850:9-13 [Thain]; RP 903:19-22, 906:1-4 [Fletcher]; RP 1466:14-1468:12, 1480:15-17 [Gill]; RP 1927:8-20 [Chambers]; RP 2180:2-20 [Anderson].)

valving.⁵ Accordingly, operators did not receive any training or instruction regarding the altered valving. (CP 3115-17 [unchallenged portion of FOF #43; unchallenged FOF ##49-50].) Operators on duty at the relevant time admittedly tried to account for what they believed to be the valving changes resulting from the design. (CP 3117 [FOF ##51-52].) They believed that they had started the transfer, but they were wrong. (CP 3118 [FOF #54].) They set one valve the wrong way, and set another valve that was redundant and had no effect whatsoever. (CP 3117-18 [FOF #52 & 55; unchallenged portion of FOF #56].) As a result, no transfer occurred and D3 collapsed. (CP 3120 [unchallenged portion of FOF #63].)

In the more than 30-year history of the City's waste treatment facility, the operators had never previously failed to successfully complete a sludge transfer. This was the first and only transfer attempted between installation of CH2M's and Irving's design and the collapse of D3. (CP 3116 [FOF #45].) Under these circumstances, CH2M's and Irving's breach of the standard of care was a key link in the causal chain, and did not operate independently from the conduct of the City.

⁵ As noted above, CH2M and Irving challenge FOF #42 which states that key City personnel were unaware of the valving alterations. The Plant Superintendent and Operations Supervisor attested to this fact. (RP 578:3-15 [Gavin]; 1112:10-15 [Pelton].) The trial court found the Maintenance Supervisor's testimony to the contrary was not credible. (CP 3044, 3115 & 3117.)

P. FOF #64 is supported by substantial evidence: CH2M and Irving should have known that safety features had been modified or disabled.

CH2M assigns error to FOF #64. (App. Br., at 2.) The finding states:

A reasonably prudent engineer in the position of CH2M could reasonably have anticipated that a plant which had been in continuous operation for over thirty years may have undergone modification or disabling of safety features, including the blocking of the digester overflow system.

(CP 3120.) This fact was clearly attested by Plaintiffs' expert. (RP 669:6-670:18 [Moncarz].)

Q. FOF #65 is supported by substantial evidence: CH2M should have known that City employees would have to work on D3.

CH2M assigns error to FOF #65. (App. Br., at 2.) The finding states:

A reasonably prudent engineer in the position of CH2M could reasonably have anticipated that the City would take all measures it deemed appropriate to comply with its discharge permit to prevent sludge from entering the Spokane River, including sending employees onto the dome of a digester to divert sludge or foam dripping from pressure relief valves and scuppers.

(CP 3121.) Foaming events were common. (RP 290:10-15 [Brugger]; RP 600:9-18 [Gavin]; RP 899:19-20 [Fletcher]; RP 1859:11-1860:16 [Reynolds]; Ex. 11 [internal p. 2].) City employees had go onto the dome of the digester to divert the foam away from the Spokane River. (RP 1113:13-24, 1119:9-1120:17 [Pelton]; RP 1025:14-25 [Evans].)

R. FOF #66 is supported by substantial evidence: CH2M knew that the SCADA system was inaccurate.

CH2M assigns error to FOF #66. (App. Br., at 2.) The finding states:

A reasonably prudent engineer in the position of CH2M could reasonably have anticipated that the SCADA system used to monitor sludge levels in the digesters could malfunction or be inaccurate.

(CP 3121.) In fact, CH2M had actual knowledge that the SCADA system was inaccurate. (RP 1615:6-1617:25 [King].)

S. FOF #95 is supported by substantial evidence: CH2M and Irving were engaged in the preparation of design plans and specifications.

CH2M assigns error to FOF #95. (App. Br., at 2.) The finding states:

The Irving proposal to separate sludge flows referenced above in these Findings constitutes the negligent preparation of a design plan within the meaning of RCW 51.24.035(2).

(CP 3128.)

Both the separation-of-flows design in general and the interim decision to place a valve or skillet at a particular location constitute “design” in the ordinary usage of the engineering field. (RP 1440:22-1443:5, 1445:20-1447:20 [Gill: “no question” that separation of flows is design]; RP 652:13-653:6 [Moncarz: “[t]he very idea of putting the skillet in”]; RP 267:8-14 [Brugger: particular location of valve/skillet].) It is no

less of a design simply because it was an interim rather than a final design.

(RP 648:6-20 [Moncarz].)

Unchallenged FOF ##24-30 indicate that the separation-of-flows design and the location of the valve/skillet were “engineering design services” pursuant to Work Modification No. 7 and Contract Amendment No. 6. (CP 3112-13.) Irving himself characterized CH2M’s reworking of the existing recirculation and heating system as “designing,” “design process,” and “design work.” (RP 568:1-19, 1800:7-1801:4.) He conceded that design is not limited to the drafting of detailed drawings necessary for construction. (RP 1800:12-1801:4.) In light of these unchallenged findings and admissions, CH2M’s and Irving’s caricature of their own design work as mere “brainstorming” or “suggestions” is disingenuous. (*See, e.g.*, App. Br., at 59.) The trial court already rejected such a caricature in unchallenged FOF #24. (CP 3112.)

II. CH2M and Irving are not immune from liability for their negligent design.

CH2M and Irving argue that they are immune from liability under RCW 51.24.035. (App. Br., at 40-48.) While the statute confers immunity on design professionals under certain circumstances, (subsection 1); the statute contains an exception to immunity for “preparation of design plans

and specifications,” (subsection 2).⁶ Since this case involves preparation of design plans and specifications, CH2M and Irving are not immune.⁷

A. The design professional immunity statute must be strictly construed against immunity for CH2M and Irving.

As a threshold matter, the design-professional immunity statute should be strictly construed against conferring immunity on CH2M and Irving, and the exception to the statute for negligent preparation of design plans and specifications should receive a corresponding liberal construction. Statutory grants of immunity are not favored in the law and should be strictly construed. *See Plano v. Renton*, 103 Wn.App. 910, 911-12, 14 P.3d 871 (2000) (recreational use statute).

In addition, the purposes of the workers’ compensation scheme, of which the design professional immunity statute is part, mandate strict construction. The immunity statute limits the normal right to file a third-party action for industrial injuries under RCW 51.24.030(1). *See* RCW 51.24.035(1). Because third parties are not part of the grand compromise underlying the workers’ compensation scheme, they are not

⁶ The full text of RCW 51.24.035 is reproduced in the Appendix to this brief.

⁷ Independently of the negligent preparation of design plans and specifications, the trial court also found that the immunity statute did not apply to CH2M and Irving because their work did not involve a construction project or a construction site. (CP 3128 [FOF #94].) While this finding is supported by substantial evidence, (RP 564:16-565:5 [Irving]; RP 1114:13-1115:4 [Pelton]; Ex. 4), Plaintiffs Evans and Michaels focus on the preparation of design plans and specifications for the sake of brevity.

normally entitled to immunity from suit for industrial injuries. *Flanigan v. Department of Labor & Indus.*, 123 Wn.2d 418, 424, 869 P.2d 14 (1994). Actions against third parties permit the injured worker to obtain full compensation for his or her injuries. *Id.*

Actions against third parties also spread responsibility for compensating injured employees and their beneficiaries among those who are legally and factually responsible for the injuries. *Flanigan*, at 424. A third-party action fosters the State's right to reimbursement so that its accident and medical funds are not depleted by the amount of damages caused by the third party. *Washington Ins. Guar. Ass'n (WIGA) v. Department of Labor & Indus.*, 122 Wn.2d 527, 530-31, 859 P.2d 592 (1993); *Mandery v. Costco Wholesale Corp.*, 126 Wn.App. 851, 855-56, 110 P.3d 788 (2005). The purposes of the workers' compensation act would be defeated if the State's right to reimbursement were impaired by the loss of a third-party right of action. *WIGA*, at 535; *Mandery*, at 856.

In order to ensure that these purposes of the workers' compensation scheme are not defeated, limitations on the normal right to pursue a third-party action should be strictly construed. As stated by the Supreme Court, "The industrial insurance fund is provided for the exclusive benefit of the employer and the workman, and we will in all doubtful cases sustain the right of the injured workman against the third

party wrongdoer who has not contributed to the fund.” *Mathewson v. Olmstead*, 126 Wash. 269, 273, 218 Pac. 226 (1923); *see also Burns v. Johns*, 125 Wash. 387, 392-93, 216 Pac. 2 (1923) (third-party action “should receive the same liberal construction that is required to be given to other parts of the act in order to secure [the worker’s] rights thereunder”).

While *Mathewson* and *Burns* were decided under prior versions of the workers’ compensation laws and involved different fact patterns, there is no reason to believe that the principles stated therein have any less vitality under the current version of the law. *See* RCW 51.12.010 (stating “[t]his title shall be liberally construed for the purpose of reducing to a minimum the suffering and economic loss arising from injuries and/or death occurring in the course of employment”). In fact, these principles are entirely consistent with purposes of full recovery for injured workers and reimbursement for the State expressed in *Flanigan*, *WIGA* and *Mandery*.

B. CH2M and Irving negligently prepared design plans and specifications.

While the interpretation of a statute is a matter of law, there is no question of the interpretation of what CH2M and Irving describe as “the plain and unambiguous language” of the exception to the immunity statute for “preparation of design plans and specifications.” (*See* App. Br., at 45.)

CH2M and Irving merely quarrel with the trial court's application of the statutory exception to the facts of this case. However, they do not challenge key findings establishing that they were engaged in the preparation of design plans and specifications. (CP 3112-13 [FOF ##24, 28.] In addition, overwhelming evidence, including admissions from Irving himself, establish he was engaged in such activity. (RP 1440:22-1443:5, 1445:20-1447:20 [Gill]; RP 652:13-653:6 [Moncarz]; RP 267:8-14 [Brugger]; RP 568:1-19, 1800:7-1801:4 [Irving].)⁸

CH2M and Irving argue that exception to the immunity statute for preparation of design plans and specifications does not apply to the negligent *failure* to prepare such plans. (App. Br., at 45.) In making this argument, matter CH2M equivocates between (1) the negligent failure to account for the consequences of incorporating such plans and specifications into a complex system, and (2) the failure to prepare such plans and specifications in the first place. This equivocation is improper here because both the separation-of-flows design and the location of the valve/skillet constitute design plans and specifications rather than a failure to prepare such plans. The fact that Irving and CH2M failed to consider the consequences of incorporating their design plans and specifications

⁸ See *Tingey v. Haisch*, 159 Wn.2d 652, 659, 152 P.3d 1020 (2007) (technical terms in statute should be defined in accordance with the usage of the technical field).

into a complex system—what Irving described as the “upstream and downstream”—only serves to establish their negligence. It should not thereby immunize the design plans and specifications from all liability.

Implicit in the foregoing equivocation is the assumption that design plans and specifications must be in writing. However, there is no textual basis in the language of RCW 51.24.035 for the requirement of a writing. In order for CH2M’s premise to be valid, the statute would have to be phrased in terms of “negligent preparation of *written* design plans and specifications.” The Court should avoid adding language to statutes. *See Cerillo v. Esparza*, 158 Wn.2d 194 201, 142 P.3d 155 (2006).

The ordinary meaning of the word “preparation” used in the statute includes “the action or process of making something ready for use or service.” *Merriam-Webster Online*, s.v. “preparation” (viewed Aug. 11, 2009). This encompasses all design activities leading up to the preparation of written design plans and specifications. Undefined (and non-technical) statutory terms should be given their ordinary meaning as determined from the dictionary. *See Tingey*, 159 Wn.2d at 659.

There is no sound reason for immunizing *unwritten* design plans and specifications while subjecting *written* design plans and specifications to potential tort liability. If liability hinges on whether or not such plans and specifications are in writing, then it will only discourage design

professionals from committing them to writing. Yet is precisely the lack of a written analysis of the upstream and downstream effects of separating the sludge flows that was part of the problem in this case, leading to the death of Mike Cmos and the severe injuries suffered by Dan Evans and Larry Michaels. The Court should avoid interpreting statutes in ways that lead to such absurd and troubling results. *See Tingey*, at 663-64.

Next, CH2M argues that it is immune because the separation-of-flows design “was sound engineering that worked.” (App. Br., at 45-46.) While this argument seems particularly brazen in light of subsequent events, CH2M is presumably arguing that its conduct did not involve the *negligent* preparation of design plans and specifications. This argument is related not to the question of immunity, but rather to the merits of Plaintiffs’ claims. It is foreclosed by CH2M’s and Irving’s strategic choice not to argue negligence (with the possible exception of some of its challenges to the trial court’s findings), focusing instead on immunity, duty and causation. In any event, there is ample evidence of CH2M’s negligence in the record.

Finally, CH2M argues that it is immune for its design plans and specifications because City personnel suggested skillets instead of the valves originally used in Irving’s design to separate the sludge flows. (App. Br., at 46.) Presumably, CH2M is suggesting that the City was

responsible for the preparation of the design plans and specifications rather than CH2M. This is a red herring. CH2M was responsible for the separation-of-flows design into which the skillets were incorporated. While CH2M originally proposed valves instead of skillets, the use of skillets did not make any material difference in the design. Both valves and skillets accomplished the same purpose of separating the flows. Skillets were used because they were cheaper and easier to fabricate and install. CH2M accepted the substitution of skillets for valves in its design, and Irving participated in deciding the physical location for installation of the skillets.⁹ Based on CH2M's and Irving's preparation of the separation-of-flows design, including but not limited to the location of the skillets, neither is immune.

III. CH2M and Irving owed a duty of care to plaintiffs.

CH2M and Irving phrase their duty-based argument in terms of a duty to train plaintiffs' coworkers or a duty to prevent the City of Spokane from harming its own employees, and argue that "[t]he trial court erred in assigning the City's safety duties to CH2M and Mr. Irving." (App. Br., at 48-50.) The characterization of the record on which this argument is based

⁹ CH2M also argues that the duty to analyze the consequences of incorporating its design plans and specifications into a complex system was beyond the scope of its engagement. (App. Br., at 46-47.) This is a separate question from whether it prepared such design plans and specifications in the first place, and will be addressed in connection with CH2M's duty, below.

is simply false. The plaintiffs never sought to impose such duties on CH2M and Irving, and the trial court never imposed such duties on them. Instead, the trial court imposed liability for their negligent design.

CH2M's mischaracterization of the record underlies its reliance on the language of its contract with the City disclaiming control and responsibility for worker safety, as well as its reliance on authorities discussing the duty to prevent harm to third parties and an engineer's duty to ensure workplace safety. Because these arguments and authorities rest upon a mischaracterization of the record, they are unhelpful in resolving the question of CH2M's duty in this case.

A. CH2M and Irving are subject to liability for their negligent designs.

There can be no serious dispute that design professionals are subject to liability for negligent design, and CH2M and Irving have offered no argument or authority to the contrary. The exception to the design professional immunity statute for negligent preparation of design plans and specifications, RCW 51.24.035, and the statute of repose for claims against persons providing "design ... or engineering services," RCW 4.16.300-.320, both presuppose the existence of claims for negligent design. *See also Gevaart v. Metco Constr., Inc.*, 111 Wn.2d 499, 501-02, 760 P.2d 348 (1988) (involving accrual of negligent design claim against architect).

The Washington Supreme Court has recognized claims for negligent design in *Seattle Western Indus., Inc., v. David A. Mowat Co.*, 110 Wn.2d 1, 8-10, 750 P.2d 245 (1988), although the issue presented by the case involved the scope of an engineer's duty of care rather than the existence of the duty. CH2M and Irving try to distinguish *Seattle Western* on grounds that "the Court simply quotes a jury instruction that it had once approved in the past, but finds no error in the trial court refusing to give that instruction." (App. Br., at 55.) They overlook the fact that the case was premised upon the engineer's negligent design (assuming that bridge trusses were oriented plumb when in fact they were oriented perpendicular). *Seattle Western*, at 3. They also overlook the Court's discussion of an engineer's duty, including its approving citation of other authorities involving negligent design. *Id.* at 9-10 (citing *Shoffner Indus., Inc., v. W.B. Lloyd Constr. Co.*, 257 S.E.2d 50, 52 (N.C. App. 1979) (trusses designed by out-of-state engineer in violation of local building code); Note, *Architectural Malpractice: A Contract-Based Approach*, 92 Harv. L. Rev. 1075, 1094-95 & n.134 (1979) (stating "The negligent design cases present few theoretical difficulties since the standard of care is well-established and the architect has no argument that others should bear the liability.")).

CH2M and Irving fail to acknowledge the Court of Appeals decision in *Hull v. Enger Constr. Co.*, 15 Wn.App. 511, 514-16, 550 P.2d 692, *rev. denied*, 87 Wn.2d 1012 (1976), which held that a design professional is subject to liability for his negligent design of a door threshold in a school, which caused a teacher to trip and fall. While the issue in *Hull* was phrased in terms of whether the design professional “violated a professional standard of care” in designing the threshold, the existence of a duty of non-negligent design was clearly foundational to the decision. When Plaintiffs’ claims are properly understood as negligent design claims, it is clear that CH2M and Irving owed them a duty.

B. CH2M and Irving mischaracterize the factual basis for the trial court’s conclusion that they owed a duty to Plaintiffs.

CH2M argues “[t]he trial court essentially found that CH2M had to analyze the skillet’s effects in writing because Work Modification 7 said the consultants would provide on-call services.” (App. Br., at 50 [citing CP 3114-16].) Again, this is a mischaracterization of the record. The failure to consider the effects of the skillets relates to the breaches of the standard of care rather than the existence of a duty, and the source of the duty is broader than the on-call services provision. The cited pages from the trial court’s findings and conclusions address CH2M’s standard of care and its breaches of the same. (*See* CP 3114-16.) The cited pages do not

purport to identify the source of CH2M's duty, as opposed to the "duties" imposed by the relevant standard of care. *See id.*

The trial court identified the sources of CH2M's and Irving's duty in a prior section of its findings and conclusions, entitled "Whether Defendants CH2M and Irving owed a legal duty to these Plaintiffs." (CP 3108-3114 [FOF ##5-36].)¹⁰ The sources of CH2M's and Irving's duty correctly identified by the trial court include:

- (1) Their status and licensure as professional engineers, (CP 3108-09 [FOF ##5-6 & 10-11]);
- (2) CH2M's contract with the City, which included a provision indemnifying the City from all claims arising from its negligence, and defined its own standard of care in terms that mirror the common law,¹¹ (CP 3108-09 [FOF ##7-9]);
- (3) The foreseeable risks and harms of CH2M's and Irving's activities, (CP 3109 [FOF #12]);
- (4) Work Modification No. 7 (incorporated into Contract Amendment No. 6), which provided not only for the "on-call services" acknowledged by CH2M, but also provided for redesign of the recirculation and heating system (not acknowledged by CH2M),¹² (CP 3110 [FOF ##15-17]);

¹⁰ In this light, CH2M's complaint that "the trial court skipped over the duty question and went directly to the standard of care" is hypocritical, and its argument that "[d]uty is not 'found' in a standard of care" is a straw man. (*See App. Br.*, at 48-49.)

¹¹ *See Wells v. Vancouver*, 77 Wn.2d 800, 803, 467 P.2d 292 (1970); *Seattle Western Indus., Inc., v. David A. Mowat Co.*, 110 Wn.2d 1, 8-10, 750 P.2d 245 (1988).

¹² CH2M attaches one page of Work Modification No. 7 as Appendix G to its brief containing the "on-call services" provision, but the company omits the remainder of the document, including the essential design services that are negligent in this case. A complete copy of the document, which was Plaintiffs' Ex. 4 at trial, is in the Appendix to this brief.

- (5) CH2M's and Irving's separation-of-flows design, (CP 3111- [FOF ##18-30]); and
- (6) Irving's participation in deciding the physical location of the valves/skillets used in the separation-of-flows design, (CP 3113-14 [challenged FOF ##33-34 & unchallenged FOF ##35-36]).

Each of the foregoing items (with the exception of CH2M's and Irving's mere status as engineers¹³) independently imposes a duty on CH2M and Irving, and any one of them is sufficient to support the trial court's decision on the question of duty.

C. The fact that the City never asked CH2M or Irving to analyze the effects of its separation-of-flows design does not relieve them of their duty, especially where City personnel were under the affirmative misimpression that the design had no effect.

When CH2M and Irving argue that they had no duty to analyze the effects of the skillets in writing because the City never asked for such analysis, (App. Br., at 50), it is a question of the standard of care rather than a question of the existence of a legal duty. It involves what an engineer is required to do after it is determined whether he has a duty to do anything at all. This is a question of fact, which in this case is supported by substantial evidence. *See Briggs v. Pacificorp*, 120 Wn.App.

¹³ CH2M correctly notes that RCW 18.43 and WAC 196-27A do not impose a duty based on *Burg v. Shannon & Wilson, Inc.*, 110 Wn.App. 798, 43 P.3d 526 (2002). While the trial court's memorandum cited these authorities, they were not identified as a source of Irving's or CH2M's duties in its findings and conclusions.

319, 322-23, 84 P.3d 369 (2003) (existence of duty is question of law but scope of duty is question of fact).

Once the City asked CH2M to redesign its recirculation and heating system, the obligation to analyze, understand and document the consequences of incorporating its design into the complex waste treatment facility fell upon CH2M and Irving as a matter of their professional standard of care. The standard of care requires this analysis as a matter of ordinary engineering practice, whether or not the client asks for it to be done. (RP 260:16-19 [Brugger]; RP 654:17-656:8 [Moncarz].) The standard of care requires such an analysis to be done, even when the client instructs an engineer not to do it. (RP 260:1-19 [Brugger].) In other words, there are some design elements required by professional standards that cannot be dispensed with by the client nor ignored by the engineer. To be sure, CH2M's expert witnesses disagreed with this standard of care, but their disagreement does not undermine the substantial evidence supporting the trial court's findings regarding the standard of care.

Of course, the fact that the City never asked for such analysis is perfectly understandable and should be expected because neither CH2M nor key City personnel had any idea that the separation of flows design changed the valving for a transfer of sludge from D3 to D2. (See CP 3115-16 [unchallenged portions of FOF ##40 & 43; challenged FOF #42].)

D. The City contract does not eliminate CH2M's or Irving's duty to Plaintiffs.

CH2M relies on language in its contract with the City disclaiming control and responsibility for workplace safety. (App. Br., at 49-50.) While this contractual language may be relevant to claims based on control or workplace safety violations, it is not relevant to claims for negligent design. *See Hull*, 15 Wn.App. at 516-17. Even when the language of a design professional's contract is relevant, it is not dispositive of the question of duty:

The scope of an engineer's common law duty of care extends at least as far as the duties assumed by him in the contract with the owner. It is not true, however, that the scope of the duty is always limited thereby. Additional duties might be assumed by affirmative conduct.

Seattle Western, 110 Wn.2d at 10 (affirming trial court's refusal to give jury instruction limiting the scope of an engineer's duty to the terms of contract; citations omitted).

CH2M and Irving do not address the provisions of the contract regarding responsibility for negligence, defining the standard of care, and undertaking to redesign the recirculation and heating system. (*See* CP 3110 [FOF ##15-17].) These contractual provisions, coupled with CH2M's and Irving's design activities are sufficient to establish their duty. (*See* CP 3111-14 [unchallenged FOF ##18-30 & 35-36; challenged FOF ##33-34])

E. CH2M's and Irving's arguments that they had no duty to protect plaintiffs are beside the point because the trial court did not impose liability for failure to protect Plaintiffs.

CH2M cites the Restatement (Second) of Torts §§ 314 and 315 for the proposition that it had no duty to protect plaintiffs from injury by the City. (*See App. Br.*, at 52-53.) However, the cited Restatement provisions are inapplicable to protection from CH2M's own negligent design. *See id.* §§ 314 (cmt. d: limited to "force which is under the actor's control") & 315 (limited to "conduct of a third person").

In connection with its no-duty-to-protect argument, CH2M also cites *Hertog v. Seattle*, 138 Wn.2d 265, 275-76, 979 P.2d 400 (1999), and *Taylor v. Stevens County*, 111 Wn.2d 159, 163, 759 P.2d 447 (1988). The cited pages from *Hertog* relate to the duty of probation counselors to supervise parolees, and the cited page from *Taylor* contains nothing more than a discussion of the public duty doctrine, neither of which has any bearing on the negligent design claims alleged in this case.

F. The workplace safety cases cited by CH2M and Irving do not relate to Plaintiffs' negligent design claims.

CH2M and Irving cite cases from Washington and elsewhere for the proposition that engineers do not have a duty to ensure workplace safety. (*See App. Br.*, at 55-58.) They claim that *Riggins v. Bechtel Power Corp.*, 44 Wn.App. 244, 722 P.2d 819, *rev. denied*, 107 Wn.2d 1003

(1986), is “more relevant.” (App. Br., at 55.) However, *Riggins* involved an engineer’s liability for unsafe working conditions rather than for negligent design. *See id.* at 245-46. While the engineer was obligated to approve the location and design of temporary facilities as part of its management of a construction project, the engineer did not in fact design or install the temporary facility (exposed rebar) causing injury to the plaintiff. *Id.* at 246. The injured worker brought a separate claim against the subcontractor responsible for designing and installing the injury-causing facility. *Id.* at 247-48. There is nothing in *Riggins* that prevented the injured worker from pursuing his negligence claim against the subcontractor.

CH2M also discusses *Riggins*’ reliance on *Loyland v. Stone & Webster Eng. Corp.*, 9 Wn.App. 682, 514 P.2d 184 (1973), *rev. denied*, 83 Wn.2d 1007 (1974). (App. Br., at 57.) As in *Riggins*, *Loyland* involved an engineer’s liability for the safety of workers. *See Loyland*, at 686 (quoting jury instruction). It did not involve liability for the design of the injury-causing facility (concrete forms). *See id.* at 686.

Next, CH2M states that *Porter v. Stevens, Thompson & Runyan, Inc.*, 24 Wn.App. 624, 602 P.2d 1192 (1979), *rev. denied*, 93 Wn.2d 1010 (1980), is even “more apposite here.” (App. Br., at 57.) However, as in *Riggins* and *Loyland*, *Porter* also involved an engineer’s duty to provide a

safe place to work. *See Porter*, at 625 & 628. It did not involve liability for the design of the injury-causing facility (an excavated ditch). Nothing in *Riggins*, *Loyland* or *Porter* precludes a claim against the designer of the injury-causing facility.

Finally, CH2M cites a number of cases outside of Washington. (App. Br., at 53-54.) Most of the cases involve an engineer's duty for workplace safety rather than non-negligent design and are therefore inapplicable.¹⁴ However, in *Hobson v. Waggoner Eng., Inc.*, 878 So. 2d 68, 77 (Miss. App. 2003)—which CH2M and Irving state “is probably the most apposite here,” (App. Br., at 54)—the court recognized that design professionals such as architects and engineers have a duty to exercise ordinary professional skill and diligence. The only reason that the court dismissed the *Hobson* plaintiff's negligent design claim was a failure of proof that the design was, in fact, defective. *Hobson*, at 76-77. *Hobson* is entirely consistent with Plaintiffs' claims in this case, and it confirms the existence of the duty owed by CH2M and Irving.

G. The Economic Loss Rule has no bearing on this case because Plaintiffs' claims are for personal and physical injuries.

¹⁴ *See Peck v. Horrocks Eng., Inc.*, 106 F.3d 949 (10th Cir. 1997); *Herczeg v. Hampton Twp.*, 766 A.2d 866 (Pa. Super. 2001); *Jones v. James Reeves Contractors, Inc.*, 771 So. 2d 774 (Miss. 1997).

In connection with its duty-based argument, CH2M cites *Alejandre v. Bull*, 159 Wn.2d 674, 681-82, 153 P.3d 864 (2007), for the proposition that “contractual duties may not be the basis for recovery of noneconomic damages.” (App. Br., at 49.) This is a misstatement of *Alejandre*. The case actually stands for the proposition that, under the Economic Loss Rule, a party cannot recover economic losses in tort when the entitlement to recovery arises from contract. *Id.* at 682-84. Instead, the party is limited to contract remedies. *Id.* at 684. The holding of *Alejandre* has recently been re-stated in *Jackowski v. Borchelt*, --- Wn.App. ---, 209 P.3d 514, 519-20 (2009). Nothing in *Alejandre* forecloses tort remedies for noneconomic losses, even when the tort duty arises from contract. To the contrary, *Alejandre* specifically recognized that tort remedies are available for cases of personal or physical injury. *Id.* at 684-85 & n.3.¹⁵

H. The absence of a duty to warn of obvious dangers has no bearing on this case because the trial court did not

¹⁵ In addition, nothing in *Alejandre* forecloses a tort duty arising from contractual obligations, as CH2M itself recognizes. (See App. Br., at 49 [citing *Rogerson Hiller Corp. v. Port of Port Angeles*, 96 Wn.App. 918, 925, 982 P.2d 131 (1999), *rev. denied*, 140 Wn.2d 1010 (2000)].) It is well-settled that tort duties of an engineer may arise from contract. 16 David K. DeWolf, et al., Wash. Pract., Tort Law & Practice § 15.51 & nn.5-6 (3d ed. 2008-09); *see, e.g., Riggins*, 44 Wn.App. at 249-52.

Riggins also belies the suggestion by CH2M, unsupported by citation to authority, that “one can assume a duty under a contract whose breach may cause recoverable tort damages, but only as between the contracting parties or third-party beneficiaries[.]” (App. Br., at 49 n.24.) In rejecting the same argument in *Riggins*, the court stated: “this argument is overly reliant upon contract theory to the point of losing focus of the nature of the claim made here, a claim which asserts negligence, rather than breach of contract. Long ago the courts eliminated privity of contract between the plaintiff and defendant before assessing tort liability.” 44 Wn.App. at 249.

impose liability for failure to warn and the danger was not obvious.

In connection with its duty-based argument, CH2M and Irving cite several cases for the proposition that “a professional engineer has no duty under Washington law to warn workers of a potential known safety hazard.” (App. Br., at 54.) Aside from the fact that none of the cases cited by CH2M and Irving involve claims against engineers or other design professionals,¹⁶ Plaintiffs did not make a claim for failure to warn and the trial court did not impose liability for failure to warn. The duty of a design professional to analyze, understand and document the consequences of incorporating his or her design into a complex system bears, at most, a superficial similarity to failure to warn claims. The cases cited by CH2M and Irving do not undercut the testimony—including the admissions by Irving and CH2M’s expert Anderson—that whatever the duty may be in other contexts, professional standards require engineers to analyze, understand and document the effects of their designs.¹⁷

Just as importantly, the danger in this case was not obvious. While CH2M and Irving state that the “danger of an overflow in D3 was

¹⁶ See *Baugh v. Honda Motor Co.*, 107 Wn.2d 127, 727 P.2d 655 (1986) (product liability); *Zamora v. Mobil Corp.*, 104 Wn.2d 199, 704 P.2d 584 (1985) (same); *Seiber v. Poulsbo Marine Ctr., Inc.*, 136 Wn.App. 731, 150 P.3d 633 (2007) (premises liability).

¹⁷ (RP 258:7-261:19 [Brugger]; RP 650:25-651:16, 657:9-658:15, 659:18-660:1, 731:5-10 [Moncarz]; RP 1443:21-1452:4 [Gill]; RP 568:13-19 [Irving]; RP 2148:5-2150:12, 2168:3-2169:1 [Anderson].)

obvious,” (App. Br., at 55), the danger that City operators would be unable to prevent an overflow by means of a sludge transfer was *not* obvious. The fact that Irving himself did not know how his design altered the method for accomplishing a transfer of sludge conclusively establishes that the danger he created thereby was not obvious. This is confirmed by the fact that City personnel were equally unaware.

IV. CH2M’s and Irving’s conduct was a cause-in-fact of Plaintiffs’ injuries.

CH2M and Irving acknowledge, as they must, that cause-in-fact is “a pure fact question,” (App. Br., at 61), and that it is subject to review only for substantial evidence, *id.* at 40. Yet, with limited exceptions, which are supported by substantial evidence, the causal chain is unchallenged, as noted above in connection with the challenge to FOF ##63 & 67-68.

Nonetheless, CH2M and Irving claim that, in this case, “causation is so implausible as to defy all reasonableness.” (App. Br., at 61.) They argue that the dome collapse could have been prevented by stopping the raw sludge feed into the digester, either by closing the feed valve or turning off the feed pumps. *Id.* at 61-62. This does not defeat cause-in-fact because there may be more than one cause of the same injury or event. *See* WPI 15.01 & 15.04.

In addition, the alternative cause proposed by CH2M and Irving had a much less significant causal relationship with the collapse of D3 than the inability to transfer sludge. A transfer of sludge using would remove far more sludge than could possibly be added by the raw sludge feed. (RP 211:24-212:14 [Brugger].) For comparison purposes, a transfer of sludge using the recirculation pumps (which was attempted but not successful in this case) would remove 60,000 gallons per hour, whereas the raw sludge feed was only 3,600 gallons per hour, a difference of 56,400 gallons per hour and a factor of almost 17. *Id.* Given the massive difference in volume, it is hardly surprising that the operators attempted to transfer sludge out of D3 using the recirculation pumps rather than stopping the feed of raw sludge. “[T]hey took the action that would transfer the most sludge in the quickest amount of time.” (RP 469:6-13 [Brugger].) In fact, “everyone used pump transfers” as a matter of routine because “[t]hey knew it was faster.” (RP 1559 [King].)

Next, CH2M and Irving argue that no operator or supervisor on duty at the time of the collapse of D3 testified that he was confused. (App. Br., at 63.) This argument flies in the face of the fact that the operators were unable to successfully initiate the sludge transfer, despite checking, rechecking, and believing that they had successfully initiated the transfer. The fact that they were confused by the separation-of-flows design is

further attested by that D3 collapsed the first time the operators attempted a transfer after the design was installed, There is no evidence of similar difficulties in the prior 30-plus years of operation.

Finally, CH2M and Irving argue that a proper analysis, understanding and documentation of the effects of their design would not have alleviated the confusion. (App. Br., at 64-65.) In making this argument, CH2M and Irving characterize such an analysis as “writing down what the operators already knew.” *Id.* at 64. This is false. Obviously, the operators did not know because they were unable to successfully initiate a transfer. A proper understanding of the upstream and downstream effects of Irving’s and CH2M’s design was necessary in order for the operators to take them into account when making such transfers.¹⁸

V. The City’s conduct does not supersede CH2M’s and Irving’s negligence.

CH2M and Irving argue that the conduct of the City supersedes their own negligence. (App. Br., at 71-75.) Superseding cause is a question of fact, reviewed only for substantial evidence. *Crowe v. Gaston*, 134 Wn.2d 509, 519-20, 951 P.2d 118 (1998). The “theoretical underpinning” of an intervening cause which is sufficient to break the original chain of causation, and thereby be considered a superseding cause, is the absence

¹⁸ (RP 260:20-261:19 [Brugger]; RP 1449:9-1452:4 [Gill]; RP 1932:14-1933:7 [Chambers]; RP 2181:10-14, 2187:20-23 [Anderson].)

of foreseeability. *Campbell v. ITE Imperial Corp.*, 107 Wn.2d 807, 813-14, 733 P.2d 969 (1987) (quotation omitted). If the intervening acts are *not* reasonably foreseeable, then they may constitute a superseding cause that relieves a negligent actor of liability. If the intervening acts *are* reasonably foreseeable, then they do not relieve a negligent actor of liability.

In this case, CH2M and Irving do not challenge the key foreseeability findings made by the trial court:

At all pertinent times, it was foreseeable to CH2M and Irving that failing to exercise the applicable standard of care could create a significant risk of bodily injury or death to persons present upon the premises of the plant, including the employees of the City who were operating or maintaining the plant.

(CP 3109 [FOF #12].) The trial court also found that the fact that City operators would attempt to transfer sludge in order to avoid overfilling a digester was known to CH2M. (CP 3109, 3111 [FOF ##13-14, 20].)

CH2M and Irving challenge other findings related to foreseeability; namely, that CH2M and Irving created or increased the same type of hazard (i.e., the collapse of D3) as the City (FOF #62); that CH2M's and Irving's conduct did not operate independently but was part of the same causal chain leading to the collapse of D3 (FOF ##63 & 67-68); that CH2M and Irving should have known that the City had modified or disabled certain safety features of the facility (FOF #64); that they should have known City operators would be working on D3 (FOF #65),

and that they should have known the SCADA system was inaccurate (FOF #66). For the reasons already stated above, these findings are supported by substantial evidence. Given the foreseeability of the City's conduct, it cannot be considered a superseding cause.

While CH2M and Irving also argue that there is no legal cause, it is not independent of their superseding cause argument. (See App. Br., at 65-71.) Legal cause and superseding cause are often linked,¹⁹ and it is clear from CH2M's and Irving's briefing that their legal cause argument is based solely on the City's conduct. While legal cause is generally a question of law, "to the extent that legal cause incorporates questions (such as superseding cause) that may turn on disputed issues of fact, the question of legal causation may not be solely for the court." 16 DeWolf, *supra* § 4.21 (parenthetical in original); *see also Crowe*, 134 Wn.2d at 519-20 (superseding cause is a question of fact). As a result, the question of legal cause turns on the same substantial evidence as the question of superseding cause.

In connection with its superseding cause/legal cause argument, CH2M and Irving relies on *Daugert v. Pappas*, 104 Wn.2d 254, 262, 704 P.2d 600 (1985), for the proposition that "our Supreme Court has held that the 'substantial factor' test [of cause-in-fact] is helpful in determining

¹⁹ See, e.g., *Maltman v. Sauer*, 84 Wn.2d 975, 982, 530 P.2d 254 (1975).

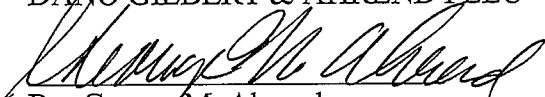
legal cause where, as here, one defendant allegedly made an insignificant contribution to causing the injuries.” (App. Br., at 66.) However, *Daugert* does not discuss legal causation and the Court declined to adopt the substantial factor test. 104 Wn.2d at 262. In any event, CH2M’s and Irving’s conduct prevented City operators from successfully initiating a transfer of sludge from D3, thereby leading to its collapse. This is nothing if not substantial.

CONCLUSION

Based on the foregoing argument and authorities, Plaintiffs Dan Evans and Larry Michaels respectfully asks the Court to affirm the trial court in all respects.

Respectfully submitted this 13th day of August, 2009.

DANO GILBERT & AHREND PLLC

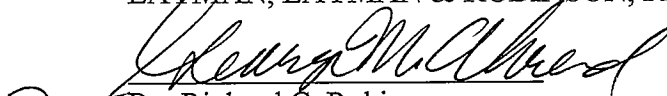


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SAWTP PMO
Work Modification No. 7
Date: 3/11/03

CH2M HILL
9 S. Washington
Spokane, WA 99201
Phone Number: 509/747-2000
Fax Number: 509/623-1622

Spokane Wastewater Management
909 E. Sprague Ave.
Spokane, WA. 99202
Phone Number: 509/625-7900
Fax Number: 509/625-7940

CH2M HILL Project #: 149204

City Project #: 98058

Modification Description:

Projects/Items that require additional budget due to additional scope or change in scope:

1. **General Administration—(149204.P1.GA.XX):** General Administration scope for 2003-2006 includes the following:
 - Standard recurring administration tasks as outlined in the original PMO scope of work and any Contract Amendments. In 2005, it is assumed that 75 percent of normal general administration costs will be needed because the designing effort for Phase I projects should slow down and be complete by the end of the year. Therefore, in 2006 it is also assumed that only 50 percent of these services will be needed.
 - An adjustment for the previous method used to establish budgets for computer, printer, copier, fax, and telephone charges.
 - A 3-year lease agreement with maintenance service for a new plotter, approximately \$100 per month. Previously, a plotter in the main office downtown was being used as the sole plotter. With the large and numerous projects at the PMO, the need to review drawings in full size format, and the logistics with the subconsultants' reviews, it has become more advantageous and cost effective to have a plotter at the PMO.
2. **Design Administration—(149204.P1.DC.DA):** Design Administration scope for 2003-2005 includes standard recurring administration tasks as outlined in the original PMO scope of work and subsequent Contract Amendments. In 2005, it is assumed that only 50 percent of normal design administration costs will be needed because the designing effort for Phase I projects should slow down and be complete by the end of the year. Therefore, in 2006 these services will not be needed at all.

A new subconsultant selection process will be required in 2003 to create a design team for the following projects: Primary Clarifier Odor Control, Digester Dome Rehabilitation, Effluent Sampling Station, Existing Aeration Basin Modifications, and Slope Stabilization and Enhancement. This process will be similar to the one used in 2001 to select subconsultant design teams for the Aeration Basin, Lab-IEDC, Plant Water III, Headworks, Chemical Addition, and Belt Filter Press projects.
3. **Construction Administration—(149204.P1.DC.CA):** Construction Administration scope for 2003-2006 includes standard recurring administration tasks as outlined in the original PMO scope of work and any Contract Amendments. These services may have to extend in to subsequent years to complete ongoing projects.
4. **Liquids Conceptual Design Report—(149204.P1.LC.XX):** The level of effort to turn the report into an electronic deliverable in 2001, in addition to hard copies, was greater than estimated in Contract Amendment No. 4 due to the voluminous appendices. Also, a supplement to the report will include an explanation as to why the calculations for primary and secondary clarifier overflow rates that are shown in the appendices were removed and why the recommendations shown on those calculations sheets differ from those shown elsewhere within the report. The budget needs to increase for this extra effort.

SAWTP PMO
Work Modification No. 7
Date: 3/11/03

5. **Gravity Belt Thickeners—(149204.P1.GC.CM):** This construction project is complete, however, additional effort for construction management services was required because of extensive positive and negative change orders. The budget needs to increase.
6. **Additional Services—(149204.P1.AS):** The Additional Services category was included in the original contract and in the subsequent contract amendments. It provides for miscellaneous services that are not specifically addressed in the design and construction management work categories. Some of the items in this category were for plant operational assistance, for example, with the biofilter system. Additional services currently include: ongoing assistance with the dissolved oxygen TMDL-setting process of Ecology; ongoing "on-call" plant electrical consultation; ongoing assistance with development of operating guidelines for DO control in the ABs; and, ongoing clarifier structural inspections.

At this time new tasks have been identified for inclusion under additional services. These tasks are as follows:

- **"On call" assistance with plant operations:** From time to time the plant staff have miscellaneous plant operations problems arise that may require or may benefit from consulting assistance and services will be provided as requested from 2003 through 2006.
- **"On call" assistance with plant instrumentation and control:** From time to time the plant staff have miscellaneous plant instrumentation and control problems arise that may require or may benefit from consulting assistance and services will be provided as requested from 2003 through 2006.
- **River Flow Analysis:** After several CSO structures were modified to reduce inflow from the Spokane River, the city wanted to see how these improvements affected the SAWTP. An analysis of the river flow in relation to the plant flow for April and May 2002 was compared to the same analysis shown in the Conceptual Design Report for the Phase I Liquids Improvements, July 2001.
- **Life Cycle Costs for Headworks vs digester:** There has been some discussion regarding the order of constructing headworks improvements with finer screens versus a new digester. The city desired a life cycle cost comparison between the two projects as background information to continue these discussions.
- **Boiler Piping Changes:** The design bid documents were prepared based on design criteria assumptions for the pre-purchased boiler. These assumptions were not verified by the boiler manufacturer until the boiler was placed in service. The manufacturer said that the assumptions needed to be modified slightly to provide more gas supply pressure to the new boiler. The supply piping design was modified to account for this change from the manufacturer.
- **Legal Description for Property Transfer:** To finalize the property transfer activity underway between the city and the state, a legal description of the SAWTP property parcels had to be completed.

7. **AG3 Pump Station Conversion—(149204.C1.CP)**

- **Design—(.FD):** Additional design services include adding predesign of the entire AG3 pump station, another WAS pump and clarifier scum skimmings pump, multiple construction schedules and combining this project with the Aeration Basin No. 6 bid package, a chlorine contact basin scum skimmer system and specialized electrical design for timer controls, tunnel piping work, liquid level monitoring for CSO clarifiers, devicenet modules for fans, clarifier scum skimming wet well level monitoring for all AG pump stations, a chlorine injection system for RAS in AG3 pump station, and design analysis and details for replacing the existing chlorine injection system RAS in AG1 and AG2 pump stations. Furthermore, once preliminary design was complete, it became obvious that conventional construction sequencing was insufficient to maintain plant operations and the effort to develop construction sequencing had to be increased and specially incorporated into the contract documents. The budget needs to increase for these additional services.

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- **PICS Construction Design—(.CP):** Additional PICS Construction Design services include the changes noted in the Design paragraph and the effort to implement a new DeviceNet design. The budget needs to increase for these additional services.
 - **CM—(.CM):** Additional construction management services are required because the construction sequencing for this project has greatly increased the complexity and length of the construction period and this project has been combined with the Aeration Basin project into one contract increasing coordination efforts but simplifying administration. Extensive additional services are also required to accommodate implementing the additional design components. Also, a 3-day value engineering session with attendees such as an outside facilitator, the contractor and his subcontractors, the PMO, and the city has been added to these services. The budget needs to increase for these additional services.
- 8. Aeration Basin No. 6—(149204.C1.AB)**
- **Design—(.FD):** Additional design services are required to combine the Aeration Basin No. 6 bid package with the AG3 Pump Station Conversion bid package.
 - **PICS Construction Design—(.CP):** Additional PICS Construction Design services are required to combine the Aeration Basin No. 6 bid package with the AG3 Pump Station Conversion bid package.
 - **CM—(.CM):** Additional construction management services are required because the construction sequencing for this project has greatly increased the complexity and length of the construction period and this project has been combined with the AG3 Pump Station Conversion project into one contract increasing coordination efforts but simplifying administration. Also, a 3-day value engineering session with attendees such as an outside facilitator, the contractor and his subcontractors, the PMO, and the city has been added to these services.
- 9. Lab-IEDC Expansion—(149204.C1.LB)**
- **Design—(.CD and .FD):**

Conceptual Design (.CD)—As the conceptual design cost was developed for Work Modification No. 6, some additional scope of services conceptual design costs mistakenly did not get included. This budget should be increased to include this oversight.

Final Design (.FD)—
Mathematical error—When the final design budget was developed for Work Modification No. 6, it had a mathematical error (i.e., a hard number instead of an equation) where approximately 15 days of CAD services were estimated but not calculated in the cost. Final design costs but not services were therefore underestimated and the budget needs to be increased to reflect the previously estimated level of effort.

Additional services: HVAC, Architect, CAD—When the HVAC, architectural, and CAD final design scopes of work increased substantially as noted in Work Modification No. 6, the subconsultants did not have time to perform all of the additional work and still meet the project schedule. It was decided in the summer and fall of 2002 to have significant portions of the HVAC, architectural, and CAD design be performed by CH2M HILL, instead of adding new subconsultants or having a new selection process, to keep the project on schedule. Therefore, the budget needs to be reallocated from subconsultant work (i.e., expense) to CH2M HILL work (i.e., labor fee). Also, additional design services were required to transfer information from subconsultants to the new CH2M HILL designers and manage and coordinate that work being performed in other offices. Therefore, the budget needs to increase.

Additional services: Modular Furniture—Architectural final design scope of work regarding modular furniture changed a few times throughout the later phases of the design process. Originally, the scope of work did not include modular furniture design. However, at one point, the scope changed to include it and some design effort was expended. Then this design was removed from the design effort and the city confirmed using its existing contract for steelcase furniture. The design team then began

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incorporating steelcase furniture into the design layout. Therefore, the budget needs to increase.

Additional services: Construction Sequencing Analysis and Temporary Facilities—After having a major scope increase at the 60% design level, it became apparent that the conceptual design recommendation for construction sequencing needed to be re-evaluated in light of a new goal. Four options and relative cost differences between options were developed, analyzed, and presented for recommendation. The result of construction sequencing analysis required adding temporary facilities for the laboratory and bathrooms. Other temporary items (e.g., admin trailer and temp HVAC) were included in the previous budget given in Work Modification No. 6 and are not included here. Therefore, the budget needs to increase.

Additional services: Plumbing replacement—Plumbing above the lab has been leaking over the years and needs repaired or replaced before the new Laboratory is complete. Design services were required to replace the plumbing and, in particular, reroute it as much as possible so that it travels above isles instead of above new benches. Therefore, the budget needs to increase.

Additional services: Lead and Asbestos—It was determined that formal testing on existing facilities be performed to confirm the presence or absence of lead and asbestos. Services were required to organize and coordinate the testing by outside services, examine the results, and implement mitigation strategies for lead. Asbestos was not detected and therefore mitigation strategies for its removal were not required. Therefore, the budget needs to increase.

Extra effort—In addition to increased scope of services noted above, extra effort is required to complete the design due to additional unanticipated complexity above and beyond that described in Work Modification No. 6. The items are as follows: architectural features of the building within the courtyard and connecting to existing structures on all sides, area separation wall design and creating existing conditions for it, coordination and analysis of fire code issues for Risk Management, and multiple fire protection designs. Therefore, the budget needs to increase without profit.

- **PICS Construction Design:** *none of this type of work is required.*

- **CM—(.CM):** The original construction management services cost figure was erroneous; only a portion of the total original cost estimate, and has to be corrected. Additional construction management services beyond the total original cost estimate are required to implement the additional design components discussed in Work Modification No. 6. Also, two components of the Plantwide General Electrical System Improvements project (new design at headworks and electrical vault) are being constructed as part of this project and will require additional coordination efforts to administer separate schedules. Most of this additional effort will be in the other project.

10. Plant Water III System Improvements—(149204.C1.PW)

- **Design—(.FD):** Additional design services include conceptual design to identify current and future processes/areas throughout plant that could beneficially reuse plant effluent, determine flow and pressure requirements at each current and future end use to establish design criteria for the pump station and distribution system, locate points to install PW3 isolation valves and PW2 back-up connections into the PW3 yard piping, determine PW3 yard piping bottlenecks based on existing and new reuse points, locate irrigation system connection points, evaluate Magna-Drive and Allen-Bradley variable frequency drive systems and perform a life-cycle cost analysis based on a 20-year period, establish maximum particle size for a self-cleaning strainer based on reuse needs, perform an alternatives analysis on self-cleaning strainers, and establish a location for new MCCs and drives. Additional final design services include implementing the additional conceptual design tasks.

- **PICS Construction Design—(.CP):** Additional PICS Construction Design services include the changes noted in the Design paragraph. Also, the actual effort for DeviceNet design was not accurately reflected in the original estimate and therefore had to increase.

- **CM—(.CM):** The original construction management services cost figure needs to be adjusted to reflect the change in the original construction cost placeholder. The construction cost has since been

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estimated and found to be at least double the original placeholder. Additional construction management services are also required to accommodate implementing the additional design components.

11. Plantwide General Electrical System Improvements—(149204.C1.GE)

- **Design—(.FD):** Additional design services include adding a new room on to the Headworks Building, a concrete box beneath this room for future flow split work, a boiler at the Headworks Building to replace existing heating systems, an electrical switchgear vault/room in the Administration Building basement, and transformer pads near AG1 and AG3 pump stations. These design components require additional Structural, Architectural, Civil, Mechanical, HVAC, and CAD services. Also, because the additional major structural and architectural work is similar to such work in the Lab-IEDC project and the new electrical vault/room ties into the new structure in that same project, coordination and additional schedules in the Lab-IEDC project were implemented to reduce construction costs.
- **PICS Construction Design:** *none of this type of work is required.*
- **CM—(.CM):** Additional construction management services are required to implement the additional design components and to coordinate with the Lab-IEDC construction project.

12. Plantwide SCADA System Improvements—(149204.C1.SD)

- **PICS Construction Design—(.CP):** Additional PICS Construction Design services were required. Software standards were upgraded based on new information acquired after the original scope and budgeting process in August 2001. Also, due to the many software communication failures between various platforms occurring during data translations and switchovers, additional testing was required. These failures could not be predicted until the work began, especially when software and hardware vendors said they have done "this" before and it worked great. The additional tasks included: database conversion, dual monitor changes (no cost adder), OPTO 22 hardware changes, processor upgrade, and iHistorian programming.

Projects/items for which scopes/budgets need to be established

13. Digester Dome Rehabilitation

The concrete digester domes are 25 years old making cause for concern about their structural integrity. The domes will have to be inspected and potentially repaired. If the outcome of the investigation calls for the repairs, then a concept for repair and subsequently a final design will have to be developed and implemented.

- **Investigation:** A structural investigation will be performed to determine the extent of repairs needed and the results will be the basis of design. The investigation will be coordinated with plant operations.
- **Design:** Design services will include conceptual, preliminary, and final designs. The conceptual design will determine the level of effort required for preliminary and final designs.
- **PICS Construction Design:** *none of this type of work is required.*
- **CM:** Construction management services will be required.

14. Effluent Sampling Station

An effluent sampling station is desirable to assist personnel efforts in monitoring plant effluent. In addition to the actual design, site planning and functionality concepts will have to be developed and used as the basis for design.

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- **Design:** Design services will include site planning, functionality analysis, and conceptual, preliminary, and final designs. The site planning, functionality analysis, and conceptual design will determine the level of effort required for preliminary and final designs.
 - **PICS Construction Design:** Monitoring through SCADA will be essential to the success of this effluent sampling station. Therefore, PICS Construction Design services will be required.
 - **CM:** Construction management services will be required.
15. **Primary Clarifier Odor Control**
Primary clarifier odor control facilities are required to minimize odors emitted from the SAWTP. The SAWTP is located in the Spokane River canyon below a large residential neighborhood.
- **Cover Design Study:** Covers for tanks are made of a variety of materials including fiberglass, fabric and steel. With steel and fiberglass covers, access hatches are typically provided for inspection and routine cleaning of weirs, launders, walls, scum troughs, and other areas. Fabric covers do not usually have access hatches and must be retracted all at once to access an area. There are many fiberglass, fabric and steel cover installations that successfully contain odors. A particular material has not been chosen yet and, therefore, must be analyzed.
 - **Design:** Design services will include conceptual, preliminary, and final designs. The conceptual design will determine the level of effort required for preliminary and final designs. It is assumed that biofilters will be the used for odor treatment.
 - **PICS Construction Design:** PICS Construction Design services will be required.
 - **CM:** Construction management services will be required.
16. **Digester Recirculation System Upgrade**
The Digester Recirculation System is 25 years old. Parts are hard, if not impossible, to get at least for the pumping system. DC pump drives are old technology. Mixing compressors seem to be doing fine. Thicker sludge off of GBTs has created problems in the digester recirculation system. Heat exchangers can't handle thick sludge. Thick sludge clogged the heat exchangers so the exchangers overheated and damaged o-rings and tubing. Exchangers then leak and don't work properly. As a result, the temperature in the digesters has decreased significantly. Also, recirculation pumps are clogging for one of two reasons: 1) exchangers can't handle thick solids and clog which backs up the pumps and, 2) pumps are not designed to pump thick solids. Digester mixing is apparently adequate for 3% to 4% solids but the mixing system is old. The city has not noticed any problems with it since the GBTs came on line. The mixing system may not handle higher digester solids. The digester recirculation system needs an upgrade.
- **Design:** Design services will include conceptual, preliminary, and final designs. The conceptual design will determine the level of effort required for preliminary and final designs.
 - **PICS Construction Design:** PICS Construction Design services will be required to upgrade the SCADA system to current standards.
 - **CM:** Construction management services will be required.
17. **Existing Aeration Basin Modifications**
The liquids conceptual design report concluded that a number of improvements should be made to enhance the performance of the existing aeration basins. Wall repairs are needed to stop leaking and prevent untreated wastewater from potentially flowing into the Spokane River. Modifications to the influent gates and addition of baffle walls, pumps and piping are needed to provide process flexibility. All of these changes will be addressed and developed into plans and specifications.
- **Design:** Design services will include preliminary and final designs.

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- **PICS Construction Design:** PICS Construction Design services will be required to upgrade the SCADA system to include new and improved equipment such as anoxic zone mixers, step feed and plug flow gates, mixed liquor recycle pumps, and dewatering gates.
 - **CM:** Construction management services will be required.
18. **Biofilter Revisions:** An analysis of biofiltration system problems concluded that several revisions should be made to improve performance and reduce operating complications. The media in the GBT biofilter should be replaced because it is at least partially composed of unacceptable materials. A new high pressure humidification system should be added to maintain more consistent moisture concentration within the media. The underdrain system should be revised to enable debris to be removed to prevent plugging. Several tests should be performed to develop a better understanding of how the treatment process is actually performing under various loading scenarios. Lastly, a program of routine maintenance should be established to ensure that the performance of the system is optimized and to provide a data base upon which to predict when additional media improvements should be made. All of these changes will be addressed in technical memoranda and development of appropriate plans and specifications. CM services and minor PICS design are also required.
19. **Slope Stabilization and Enhancement:** A portion of the river bank along the south side of the SAWTP needs to be maintained and enhanced. Maintenance is required south of digester no. 1 where the slope appears to be slowly eroding away. Enhancement for animals and river traffic viewing is required by the shorelines permit.
20. **Plantwide Odor Control Planning:** The Phase 1 CIP includes specific project improvements that are intended to reduce odors being produced by certain processes within the plant. The City has also formed and conducted multiple meetings with an Odor Control Advisory Committee composed of interested neighbors. One purpose of these meetings has been to identify and prioritize areas within the SAWTP where additional odor control efforts are needed. Another purpose of the meetings has been to assess the performance of new odor control improvements. These meetings and discussions have led to the conclusion that a more comprehensive approach should be taken to odor management. The purpose of this new task is therefore to develop a plantwide odor control plan. Specific tasks include:
- Review Existing Plant Issues & Conduct Site Visits
 - Perform On-Site Sampling
 - Estimate Emissions
 - Perform Odor Dispersion Modeling - Baseline
 - Perform Odor Dispersion Modeling - Proposed Controls
 - Develop Conclusions & Recommendations
 - Participate in Community Outreach
 - Prepare Summary Report
21. **Use Attainability Analysis:** Preliminary results from the DO TMDL modeling being performed by Ecology suggest that the current and proposed DO standards in Long Lake cannot be achieved, regardless of the actions taken by any or all of the point source dischargers. The City has therefore directed the PMO to conduct a Use Attainability Analysis to establish a scientifically valid basis for setting site specific DO standards that will meet existing and achievable beneficial uses from Long Lake Dam to the Post Falls Dam.
22. **Habitat Management Plan Implementation:** The habitat management plan was approved with conditions that need to be implemented to meet permit requirements.
23. **Printing and Reprographics Expenses:** Inadvertently, only minimal printing and reprographics expenses were included in Contract Amendment No. 4 when normal expenses could be as much as quadruple the costs shown in that amendment. In light of the focus on such expenses, a new approach was developed to reduce the cost of printing and reproducing all of the review and bid packages for each project. The new approach included producing electronic deliverables for reviewing and bidding and will ultimately reduce

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these printing and reprographics expenses. However, the copying/reprographic expenses in Contract Amendment No. 4 are too low even for this new approach and must be adjusted to reflect real expenses.

24. **Management Reserve—(149204.C1.MR):** This reserve fund is established by the City to address unforeseen and therefore unbudgeted program activities. The fund is added to the PMO budget, however, ~~it can only be utilized with the prior approval of the City's program manager.~~ When a specific unforeseen activity is identified by either the PMO or the City, a scope/budget proposal is prepared by the PMO to perform the new activity and it is submitted in a work modification for review by the City. Following review, revisions if appropriate and approval by the City, the PMO is then authorized to transfer the necessary funds out of the Management Reserve and into a separate project account for performance of the new task.

Engineering Cost Impact

☐ Not Applicable

☐ Not Yet Assessed

1. **General Administration:** The total budget increase for general administrative services to be performed during 2003-2006 period is \$670,488. This budget includes fixed fee of \$71,442.
2. **Design Administration:** The total budget increase for design administration services to be performed during 2003-2006 period is \$395,886. This budget includes fixed fee of \$35,978.
3. **Construction Administration:** The total budget increase for construction administration services to be performed during 2003-2006 period is \$252,269. This budget includes fixed fee of \$10,679.
4. **Liquids Conceptual Design Report:** The total budget increase for services is \$30,802. This budget includes fixed fee of \$1,540.
5. **Gravity Belt Thickeners (CM):** The total budget increase for services is \$29,998. This budget includes fixed fee of \$2,719.
6. **Additional Services:** The total budget increase for services to be performed during 2003-2006 period is \$292,046.50. This budget includes fixed fee of \$16,836.
7. **AG3 Pump Station Conversion**
 - **Design:** The total budget increase for services is \$123,112. This budget includes fixed fee of \$10,656.
 - **PICS Construction Design:** The total budget increase for services is \$97,236. This budget includes fixed fee of \$1,174.
 - **CM:** The total budget increase for services to be performed during 2003-2004 period is \$102,369.50. This budget includes fixed fee of \$6,899.
8. **Aeration Basin No. 6**
 - **Design:** The total budget increase for services is \$16,838. This budget includes fixed fee of \$1,255.
 - **PICS Construction Design:** The total budget increase for services is \$49,703. This budget includes fixed fee of \$600.
 - **CM:** The total budget increase for services to be performed during 2003-2004 period is \$168,068.50. This budget includes fixed fee of \$17,141.

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9. Lab-IEDC Expansion

- Design: The total budget increase for services is \$150,178. This budget includes fixed fee (with a credit for extra effort) of \$17,749.
- PICS Construction Design: *none since previous work modification.*
- CM: The total budget increase for services to be performed during 2003-2004 period is \$358,165.50. This budget includes fixed fee of \$25,683.

10. Plant Water III System Improvements

- Design: The total budget increase for conceptual and final design services to be performed during 2003 period is \$28,965. This budget includes fixed fee of \$1,724. Fees for conceptual design only were based on 1.5 percent of construction cost which is estimated to be \$800,000.
- PICS Construction Design: The total budget increase for services to be performed during 2003-2004 period is \$49,986. This budget includes fixed fee of \$603.
- CM: The total budget increase for services to be performed during 2003-2004 period is \$15,623. This budget includes fixed fee of \$1,183.

11. Plantwide General Electrical System Improvements

- Design: The total budget increase for services is \$91,704. This budget includes fixed fee of \$6,367.
- PICS Construction Design: *none of this type of work is required.*
- CM: The total budget increase for services to be performed during 2003-2004 period is \$20,393. This budget includes fixed fee of \$3,111.50.

12. Plantwide SCADA System Improvements

- PICS Construction Design: The total budget increase for services to be performed during 2003 period is \$39,134. This budget includes fixed fee of \$472.

Projects/items that need established budgets

13. Digester Dome Rehabilitation

- Investigation: The total budget for services to be performed during 2004 period is \$25,000. This budget includes fixed fee of \$2,394. Fees were based on 5 percent of construction cost which was \$500,000 given in the Conceptual Design Report for Phase I Liquids Improvements, March 2001.
- Design: The total budget for services to be performed during 2004 period is \$75,000. This budget includes fixed fee of \$3,000. Fees were based on 15 percent of construction cost which was \$500,000 given in the Conceptual Design Report for Phase I Liquids Improvements, March 2001.
- PICS Construction Design: *none of this type of work is required.*
- CM: The total budget for services to be start during 2004 period is \$50,000. This budget includes fixed fee of \$4,000. Fees were based on 10 percent of construction cost which was \$500,000 given in the Conceptual Design Report for Phase I Liquids Improvements, March 2001.

14. Effluent Sampling Station

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- **Design:** The total budget for services to be performed during 2004 period is \$25,000. This budget includes fixed fee of \$1,100. Fees were based on 10 percent of construction cost which was \$250,000 given in the Conceptual Design Report for Phase I Liquids Improvements, March 2001.
- **PICS Construction Design:** The total budget for services to start during 2004 period is \$15,000. This budget includes fixed fee of \$300.
- **CM:** The total budget for services to start during 2004 period is \$25,000. This budget includes fixed fee of \$2,500. Fees were based on 10 percent of construction cost which was \$250,000 given in the Conceptual Design Report for Phase I Liquids Improvements, March 2001.

15. Primary Clarifier Odor Control

- **Cover Design Study and Design:** The total budget for services to be performed during 2004 period is \$360,000. This budget includes fixed fee of \$15,000. Fees were based on about 8.5 percent of construction cost which was \$4,240,000 given in the Conceptual Design Report for Phase I Liquids Improvements, March 2001.
- **PICS Construction Design:** The total budget for services to start during 2004 period is \$66,000. This budget includes fixed fee of \$1,500.
- **CM:** The total budget for services to start during 2004 period is \$424,000. This budget includes fixed fee of \$38,000. Fees were based on 10 percent of construction cost which was \$4,240,000 given in the Conceptual Design Report for Phase I Liquids Improvements, March 2001.

16. Digester Recirculation System Upgrade

- **Design:** The total budget for services to be performed during 2003-2004 period is \$300,000. This budget includes fixed fee of \$25,400. Fees were based on 10 percent of construction cost which is assumed to be \$3,000,000 as a placeholder.
- **PICS Construction Design:** The total budget for services to be performed during 2003-2004 period is \$73,000. This budget includes fixed fee of \$1,500.
- **CM:** The total budget for services to be performed during 2003-2004 period is \$300,000. This budget includes fixed fee of \$27,000. Fees were based on 10 percent of construction cost which is assumed to be \$3,000,000 as a placeholder.

17. Existing Aeration Basin Modifications

- **Design:** The total budget for services to be performed during 2005-2006 period is \$430,000. This budget includes fixed fee of \$20,000. Fees were based on 10 percent of construction cost of \$4,300,000 given in the Conceptual Design Report for Phase I Liquids Improvements, March 2001.
- **PICS Construction Design:** The total budget for services to be performed during 2005-2006 period is \$25,000. This budget includes an assumed fixed fee of \$500. This budget is a placeholder and was based on assuming 15% of the PICS 2002 final budget (\$165,000) for the New Aeration Basin No. 6.
- **CM:** The total budget for services to be performed during 2006 period is \$430,000. This budget includes fixed fee of \$39,000. Fees were based on 10 percent of construction cost which is assumed to be \$4,300,000 as a placeholder.

- **18. Biofilter Revisions:** The total budget for services to be performed during 2003 period is \$28,000. This budget includes fixed fee of \$2,699.50. Fees, excluding PICS, were based on 25 percent of construction cost which is assumed to be \$100,000 as a placeholder. PICS design fees were based on 1.5% of construction.

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19. **Slope Stabilization and Enhancement:** The total design and CM budget for services to be performed during 2004 period is \$25,000. This budget includes fixed fee of \$1,500. Fees were based on 25 percent of construction cost which is assumed to be \$250,000 as a placeholder.
20. **Plantwide Odor Control Planning:** The total budget for services to be performed during 2003 period is \$99,153. This budget includes fixed fee of \$8,918.
21. **Use Attainability Analysis:** The total budget for services to be performed during 2003 period is \$321,868. This budget includes fixed fee of \$22,991.
22. **Habitat Management Plan Implementation:** The total budget for services to be performed during 2004 period is \$5,000. This budget includes fixed fee of \$500. Fees were based on a placeholder of \$20,000.
23. **Printing and Reprographics Expenses:** The total budget increase for expenses is approximated at \$10,000 spread across all projects.
24. **Management Reserve:** The total budget for management reserve for work to be performed during 2003-2006 period is 10% of total budget increase, or \$609,499. Because Work Modification No. 6 used the remaining management reserve established in Contract Amendment No. 4, this work modification will add management reserve budget back into the next contract amendment.

The total engineering cost budget increase for all services in this work modification is \$6,704,485. This budget includes fixed fee of \$451,614. (NOTE: dollar amounts are rounded to nearest whole dollar, with exception to several amounts which were rounded to the nearest half dollar so that the sum of individual amounts equaled total amount shown here.)

Construction Cost Impact

☒ Not Applicable

☐ Not Yet Assessed

Explanation: The construction costs will increase for those existing projects that had increased scope of services. However, the overall construction costs have been lower than anticipated due to the highly competitive market and difficult economy. Cash flow diagrams will be revisited and compared to the existing Capital Improvements Program budget in the next few months. It is anticipated that the cash flow requirements to complete Phase I projects will be less than the CIP budget available. This will be confirmed.

Schedule Impact

☒ Not Applicable

☐ Not Yet Assessed

Explanation: The schedule is currently being modified, but it is anticipated that all projects in this work modification will be completed by 2007. The schedule will be revised and reviewed in the next few months.

Based upon City authorization, the TP-PMO is proceeding with the changes described above. In the event the TP-PMO annual budget is exceeded as a result of this work modification, the City agrees to amend the existing contract (Contract Amendment 5) to cover additional costs as identified to complete the work as described. This work modification will be reconciled with all other budget information during the next annual update or before the annual budget is exceeded, which ever comes first.

James S. Carrell
CH2M HILL

3-19-03
Date

Thomas Arnold
City of Spokane

3/17/03
Date

RCW 51.24.035

Immunity of design professional and employees.

(1) Notwithstanding RCW 51.24.030(1), the injured worker or beneficiary may not seek damages against a design professional who is a third person and who has been retained to perform professional services on a construction project, or any employee of a design professional who is assisting or representing the design professional in the performance of professional services on the site of the construction project, unless responsibility for safety practices is specifically assumed by contract, the provisions of which were mutually negotiated, or the design professional actually exercised control over the portion of the premises where the worker was injured.

(2) The immunity provided by this section does not apply to the negligent preparation of design plans and specifications.

(3) For the purposes of this section, "design professional" means an architect, professional engineer, land surveyor, or landscape architect, who is licensed or authorized by law to practice such profession, or any corporation organized under chapter 18.100 RCW or authorized under RCW 18.08.420 or 18.43.130 to render design services through the practice of one or more of such professions.

[1987 c 212 §1801.]

CERTIFICATE OF SERVICE

I certify that I mailed, or caused to be mailed, a copy of the foregoing BRIEF OF RESPONDENTS MICHAELS AND EVANS via Fed Ex Priority Overnight on the 13th day of August, 2009, to the following counsel of record at the following addresses:

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Further, I certify that I mailed, or caused to be mailed, a copy of the foregoing BRIEF OF RESPONDENTS MICHAELS AND EVANS, postage prepaid, via U.S. First Class Mail on the 13th day of August, 2009, to the following counsel of record at the following addresses:

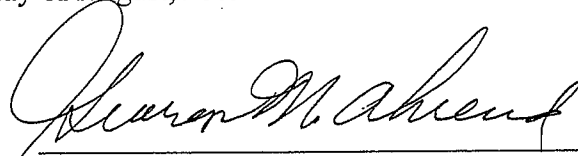
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DATED this 13th day of August, 2009.



George M. Ahrend, WSBA 25160
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